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# THE EFFECT OF PAID MATERNITY LEAVE ON MATERNAL HEALTH AND PARENTAL HEALTH INVOLVEMENT WITHIN THE UNITED STATES

by

ALYSSA M. NUNEZ

Under the Direction of Daniel Pasciuti, PhD

## ABSTRACT

Maternity leave is the most basic and ubiquitous form of parental leave used in government policies and has been associated with a range of positive maternal and child health outcomes. However, the United States is the only country in the developed world that has not done implemented a government-funded parental leave policy. The purpose of this study was to examine if a paid maternity leave policy directly impacts maternal health and parents' abilities to engage in health maintenance for their infants, by comparing policies and health outcomes across the United States. Using binary logistic regression, this study tests the following research questions: "Does access to a paid maternity leave policy impact the emotional and physical well-being of mothers?" and "Does access to a paid maternity leave policy allow mothers to meet a higher number of infant 'well' visits, thus impacting their infants' health?"

INDEX WORDS: Paid maternity leave, Maternal health, Infant health

THE EFFECT OF PAID MATERNITY LEAVE ON MATERNAL HEALTH AND  
PARENTAL HEALTH INVOLVEMENT WITHIN THE UNITED STATES

by

ALYSSA M. NUNEZ

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

2020

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2020

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PARENTAL HEALTH INVOLVEMENT WITHIN THE UNITED STATES

by

ALYSSA M. NUNEZ

Committee Chair: Daniel Pasciuti

Committee: Mathew Gayman

Erin Ruel

Electronic Version Approved:

Office of Graduate Services

College of Arts and Sciences

Georgia State University

August 2020

## **DEDICATION**

This thesis is dedicated to all mothers throughout the United States.

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## 1 INTRODUCTION

In the past fifty years, there has been a steady increase in the number of countries that have implemented a government-funded parental leave policy (Dahl et al. 2016). Government-funded parental leave has increased worldwide so that, today, only three countries have not yet implemented policies (Jou et al. 2018). These countries include Papua New Guinea, Suriname, and the United States. This makes the United States the only country in the developed world with no federal paid maternity leave policy.

Parental leave policies generally include maternity, paternity and adoption leave; however, this thesis will focus on maternity leave only. Maternity leave is the most basic and ubiquitous form of parental leave used in government policies; thus, it is important to study the effects of such a policy in the United States. Government-funded maternity leave is a period when a woman is legally absent from work before and after a birth of a child, but is still paid (Paid Maternity Leave, 2018). Paid maternity leave allows women time to recover from childbirth and to care for their newborn infants without having to risk employment or income loss (Jou et al. 2018).

Paid leave has been associated with a range of positive maternal and child health outcomes (Shepherd-Banigan and Bell 2014). However, most of the literature on paid maternity leave and health outcomes have several limitations. The existing research often fails to distinguish between paid and unpaid leave as well as differentiate between type of leave (i.e. general, family, or maternity leave) which can affect leave duration and resource availability (Andres et al. 2016; Jou et al. 2018). Furthermore, existing studies have geographically or demographically homogenous populations, thus limiting their generalizability (Andres et al. 2016). The few studies that have utilized a nationally representative sample, rely on relatively

old data, mostly from the 1990s (Andres et al. 2016). Policy developments since the 1990s, such as state-level policy changes, have likely influenced women's experiences, access to, and outcomes of maternity leave (Jou et al. 2018). Due to the United States not having a national policy, previous research has looked at health outcomes outside of the United States with distinct political, social, and economic institutional differences with limited ability to understand how transferable those outcomes will be in the United States.

This thesis fills this important gap by using a national data set of women with infants in the United States conducted in 2013. This thesis examines if a paid maternity leave policy directly impacts maternal health and parents' abilities to engage in health maintenance for their infants, by comparing policies and health outcomes across the United States. Currently, four states – California (effective 2004), New Jersey (effective 2009), Rhode Island (effective 2014), and New York (effective 2018) have policies in place. This provides a unique opportunity for comparison within the United States between states with and without a maternal leave policy, which could be useful in convincing more states to implement these policies.

Due to the timing of the dataset, *Listening to Mothers III*, I will only examine health outcomes in California and New Jersey as both states had enacted state-wide paid leave policies by 2013. California was the first state to pass a paid parental leave program, which was enacted in 2002 and became effective in 2004. California's program provides up to six weeks of partial pay to bond with a new child entering the family through birth, adoption, or foster care placement (Employment Development Department State of California). New Jersey was the next state to pass a paid parental leave program, which became effective in 2009. New Jersey's program also provides up to six weeks of partially paid maternity leave.

This study argues that a paid maternity leave policy can positively affect maternal health outcomes and mothers' ability to care for their infants, which should positively affect the health of the child. In this thesis, using the Listening to Mothers III, I test whether having access to a paid maternity leave program impacts the emotional and physical well-being of mothers and if it impacts their ability to engage in the health maintenance of their children. Maternal health is a direct measure of health and recovery postpartum, while parental health involvement measures the health maintenance of the child adhering to check-ups. Specifically, I address the research questions: "Does access to a paid maternity leave policy impact the emotional and physical well-being of mothers?" "Does access to a paid maternity leave policy allow mothers to meet a higher number of infant 'well' visits, thus impacting their infants' health?" If there is a significant relationship, then "Do non-policy states health outcomes differ by type of insurance?" It is important to study these effects of paid maternity leave because these outcomes are crucial to mothers' abilities to care for themselves and their children.

## **2 LITERATURE REVIEW**

### **2.1 The United States' Current Policy**

As previously stated, the United States is an outlier among industrialized countries in not providing mothers with paid leave after the birth of a child. In the United States, maternity leave is guaranteed only through the Family and Medical Leave Act (FMLA), which was passed in 1993 (Jou et al. 2018; Shepherd-Banigan and Bell 2014). However, FMLA only applies to employers with 50 or more employees within a 75-mile radius. In addition, the employee must be employed with the company for at least 12 months and the employee must have worked a minimum of 1,250 hours during those 12 months (U.S. Department of Labor, 1993). Due to the act's eligibility criteria, less than half of all working women receive job protection under this

statue (McCloskey 2016; Shepherd-Banigan and Bell 2014). Even if women are eligible for FMLA many mothers cannot afford to take leave because this act does not mandate employees to be paid (McCloskey 2016). In 2012, over 2.8 million U.S. workers refrained from taking leave due to economic concerns (Klerman et al. 2014 as cited in Jou et al. 2018).

National paid maternity leave in the United States is more essential, than ever before, because the number of women in the work force continues to increase. Specifically, labor force has increased significantly among women with young children, from 34% in 1976 to 61% in 2015 (Jou et al. 2018). Furthermore, in 40% of American households, a woman is the sole or primary breadwinner, however, 88% of working women have no access to paid maternity leave (Wang et al. 2013; Gault et al. 2014). Of these 88%, many are women of color and low socioeconomic status. In 2015, over 20% of low-income workers reported having no type of family leave available and paid family leave was available to only 4% of workers in the lowest income decile (Perez and Groshen 2015).

Although research has shown that access to maternity leave in the United States is not equal for all women, specifically women of color and lower socioeconomic status, research using the Listening to Mothers II dataset found the opposite (Bartel et al. 2019). While paid maternity leave benefits were more generous for older, highly educated, privately insured, partnered and high-income women, results showed that non-Whites received better leave benefits (Shepherd-Banigan and Bell 2014). Thus, women in these categories were more likely to receive paid maternity leave for longer periods at higher salary rate compensation levels, but when other sociodemographic characteristics were controlled, non-Whites received better benefits. Specifically, Black non-Hispanic women were more likely to receive paid maternity leave than women of other racial or ethnic groups. Additionally, Hispanic women tended to have more days

per year of personal leave. However, Shepherd-Banigan and Bell (2014) speculate these findings are due to respondents being systematically different than women of their racial/ethnic group in the general population. For example, women had to be proficient in English in order to participate in the survey, which may have excluded key Hispanic sub-groups, such as immigrants.

Rossin-Slater and colleagues (2012) found that the implementation of paid family leave in California increased leave-taking for more vulnerable groups, which included Black, non-college educated, unmarried, and Hispanic mothers. Prior to the enactment of paid family leave, these groups used only an average of around one to two weeks of leave, compared to between three and five weeks for their advantaged counterparts (Rossin-Slater et al. 2012). However, after California's paid family leave was implemented, high school educated, unmarried, Hispanic and black mothers were predicted to take four to six weeks of leave, with six to seven weeks estimated for their college-educated, married, or non-Hispanic white peers (Rossin-Slater et al. 2012). Although the small sample size that was utilized may reduce the reliability of these findings, this demonstrates that paid maternity effects groups differently and further investigation is needed.

## **2.2 Maternal Health**

According to the World Health Organization, maternal health refers to “the health of women during pregnancy, childbirth, and the postpartum period” (2020). Maternal health consists of maternal physical health and maternal mental health. Research has shown that when women have access to paid maternity leave after giving birth, there are positive health outcomes for the mother and the infant (Jou et al. 2018; Shepherd-Banigan and Bell 2014; Berger et al. 2005). Existing literature suggests that women who are employed postpartum or who return to

work soon after childbirth experience more mental and physical health symptoms compared to other women (Jou et al. 2018; Kornfeind and Sipsma 2017). Additionally, the mother's health can ultimately impact the health of the child. Mothers are the main providers of care, such as psychological health and nutrition (WHO 2020), thus maternal health is crucial.

### ***2.2.1 Maternal Physical Health***

There is a paucity of research on the effects of paid maternity leave on maternal physical health. Based on the limited research, we do know that having access to leave gives mothers time to heal from childbirth (Jou et al. 2018). There are several postpartum physical problems that may occur, such as fatigue, cesarean or episiotomy discomfort, uterine cramps, respiratory symptoms, carpal tunnel syndrome, gynecologic or urologic infections, mastitis, thyroiditis, urinary retention, stress incontinence, or more. (Dagher et al. 2014). Several of these disorders can persist for months after childbirth, long after mothers have returned to work. If mothers do not take the time to heal properly from childbirth, further complications can occur, therefore taking the time to heal physically is important.

### ***2.2.2 Maternal Mental Health***

Paid leave does not only allow women time to heal physically, but research suggests a positive association between paid leave and maternal mental health (Jou et al. 2018; Aitken et al. 2015). Up to 12 months after birth, between 10 and 20 percent of mothers suffer from depression (Pearlstein et al. 2009). Post-partum mothers also face an increased risk of other psychological disorders, such as anxiety, post-traumatic stress, and psychosis (Brockington 2004). According to the American Psychological Association, postpartum depression can occur up to 12 months postpartum but often peaks approximately 6 weeks after birth, when many mothers in the U.S. return to work (Kornfeind and Sipsma 2017).



Maternity leave is an important aspect of the postpartum experience for employed women because of the physiological and social changes experienced during this period (Kornfeind and Sipsma 2017). Literature using data from the National Maternal and Infant Health Survey (NMIHS) investigated the impact of the length of maternity leave on maternal health (Chatterji and Markowitz 2005). Results suggest that longer leave from work is associated with a reduction in the number or frequency of depressive symptoms for mothers. Specifically, increasing maternal leave by one week is associated with a 6-7% decline in depressive symptoms (Chatterji and Markowitz 2005). In an Australian evaluation, Hewitt et al. (2017) argue that the improvements in mothers' mental health arise from the reduced stress resulting from the secure, predictable income that is provided. This also reduces time pressures of an early return to work which can also decrease stress.

Applying this to the United States, research using national data from the Listening to Mothers III survey found that maternity leave significantly predicted maternal mental health outcomes. Women who took paid leave, partially or fully, experienced a nearly 50% reduction in the odds of being hospitalized and having seen a mental health care provider since childbirth, compared to women who did not take paid maternity leave (Jou et al. 2018). In addition, Kornfeind and Sipsma (2018) also utilized the Listening to Mothers III dataset and found that each additional week of maternity leave was associated with 42% lower odds of experiencing postpartum depression symptoms.

### **2.3 Immediate Adverse Effects for Infant**

Mothers are not the only ones who receive health benefits from paid maternity leave. Paid maternity leave can impact child health outcomes from birth through their childhood years, such as reduced neonatal and child mortality rates. Heymann et al. (2011) examined paid

maternity leave and infant and child mortality rates among 141 countries, which were controlled by overall resources available to meet basic needs (per capita gross domestic product, total and government health expenditures, female literacy, and basic health care and public health provision). Results showed that 10 weeks of paid leave at a full-salary equivalent was associated with a 10% reduction in neonatal and infant mortality rates and a 9% lower rate of mortality in children younger than 5 years old (Heymann et al. 2011). Furthermore, longer leave has been found to be associated with an even greater decline. Specifically, a year of job-protected paid leave is associated with about a 20% reduction in post-neonatal deaths and a 15% reduction in fatalities occurring between 1 and 5 years old (Ruhm 2000). Women who know they will have access to paid leave after giving birth may have reduced stress causing less complications during pregnancy, resulting in lower odds of neonatal and child mortality.

While all mothers and infants may be at risk of experiencing harm and poor outcomes due to the lack of unpaid leave, there are groups of individuals at heightened risk (Jou et al. 2018). Women of color and lower socioeconomic status are more likely to have poorer outcomes (Jou et al. 2018). Mortality rates for infants born to African American women (12.4 per 1000 births) were nearly twice the national average (6.4 per 1000 births) in 2009 (Jou et al. 2018). Additionally, the relative risk of neonatal mortality in the most socioeconomically deprived groups compared to the least deprived groups has increased from 36% to 43% between 1985 and 2000 (Singh and Kogan 2007). Policies that increase access to maternity leave, including at least some length of paid leave, to vulnerable groups such as low-income women and women of color, may support the reduction of sociodemographic disparities in health (Jou et al. 2018).

## 2.4 Parental Health Involvement

Parents play an important role in the implementation of children's healthcare (Aarthun et al. 2018). As representatives of their children, parents are responsible for consenting to examinations and treatments, thus parents' involvement allows them to personally influence their child's healthcare and their life circumstances (Aarthun et al. 2018). The American Academy of Pediatrics recommends 14 well-child visits before the age of 5 years old (2015). These visits are purposely frequent, which allows for a comprehensive assessment of a child and the opportunity for further evaluation (Hakim and Bye 2001; Turner 2018). Specifically, well-child visits include the following: review of birth history; prior screenings; diet; sleep; dental care; medical, surgical, family, and social histories; head-to-toe examination, including a review of growth; immunizations are reviewed and updated as appropriate; developmental screening and autism-specific screening; and the opportunity to answer caregivers' questions and to provide age-appropriate answers (Turner 2018). Given that there is a recommended level of care, following it should improve infant health, thus parental health involvement is a proxy for infant health.

In order to engage in well-child visits, parents must have the capacity and time to do so (Aarthun et al. 2018). While medically important to frequently assess the medical wellbeing of the child, these visits require both time and capacity for parents to schedule and attend these visits with their pediatrician. Research has shown that in order to improve the quality of child health, there must be a national effort on increasing compliance with periodic preventive care for young children (Hakim and Bye 2001). One way to increase compliance is by giving parents the time and capacity to do so, which can be achieved through paid leave.

### ***2.4.1 Long-Term Well-Being***

In addition to reducing neonatal and child mortality, maternity leave has been found to be associated with longer breastfeeding duration, improved developmental outcomes, higher rate of up-to-date child immunizations, and more well-child visits (Jou et al. 2018, Shepherd-Banigan and Bell 2014; Berger et al. 2005). Using data from the National Longitudinal Survey of Youth, these impacts were found to be weaker when mothers return to work full-time within the first 12 weeks of giving birth, which is the time allotted by FMLA (Berger et al. 2005). Thus, mothers who are eligible for FMLA only are less likely to have these positive health outcomes.

Longer breastfeeding duration is a health benefit that paid maternity leave provides for children, however, a leave period of twelve weeks may not be sufficient. According to the American Academy of Pediatrics, six months is the recommended length of exclusive breastfeeding, followed by continued breastfeeding as foods are introduced up to 1 year or longer (2016). Human milk provides babies with protein, fat, and sugar they need to be healthy, as well as substances that benefit babies' immune systems, such as antibodies, enzymes, and white blood cells (American Academy of Pediatrics 2016). These substances can protect babies from infections and diseases even after they have been weaned off breast milk. For example, research has shown that infants who exclusively breastfed for four months, were less likely to be hospitalized for a lower respiratory tract infection (croup, bronchiolitis, or pneumonia) than formula-fed infants (American Academy of Pediatrics 2016). In addition to infant health benefits, breastfeeding also benefits the mother by reducing the risks of breast and ovarian cancer (U.S. Department of Health and Human Services 2011 as cited in Huang and Yang 2014)

While breastfeeding is associated with better physical health outcomes for children, as well as creating emotional bonds between mother and infant, women are less likely to continue

to breastfeed when they return to work. Using the Infant Feeding Practice Study (IFPS) dataset, Huang and Yang (2014) found that breastfeeding practices in California improved after the state implemented the first paid family leave program. Specifically, there was an increase of 3-5 percentage points for exclusive breastfeeding through the first three and six months, and an increase of 10-20 percentage points for breastfeeding through the first three, six, and nine months (Huang & Yang 2014). Furthermore, Berger et al. (2005) found that women who return to work within 12 weeks are about 13% less likely to breastfeed and breastfeed for 41% fewer weeks. Thus, the maximum time of unpaid leave under FMLA has been associated with shorter periods of breastfeeding (Berger et al. 2005). Once women return to work, they may not have available time or space to continue to breastfeed. Therefore, if women must return to work before the recommended length of exclusive breastfeeding, their baby may be less likely to receive all the benefits of human milk.

Additionally, paid leave, as well as the duration of leave, has been shown to impact immunization, well-child visits, and infant hospitalization rates (Berger et al. 2005). Well-child visits are an opportunity to deliver immunizations, identify and treat disease, and provide anticipatory guidance (Wolf et al. 2020). Attendance of these visits have been associated with reduced hospitalizations, however, despite these benefits, children miss between 30-50% of well-child visits (Wolf et al. 2020). Early returns to work are associated with decreased probabilities of well-child visits and receiving immunizations. Particularly, children whose mothers returned to work within 12 weeks are 2.4 percentage points less likely to receive well-baby care and 3.4 percentage points less likely to receive all of their immunizations, which was marginally significant (Berger et al. 2005). Poor, uninsured, African American children miss a greater proportion of these visits compared to upper income, privately insured, whites (Wolf et al. 2020).

Additionally, Wolf et al. (2020) found that transportation, financial stress, taking time off work, and difficulty with childcare were barriers to attending all recommended well-child visit appointments.

Furthermore, women who took paid leave, partially or fully, experienced a nearly 50% reduction in the odds of having had their infants hospitalized (Jou et al. 2017). Women who took over 12 weeks of leave saw a nearly 75% decrease in the odds of having had their infant re-hospitalized (Jou et al. 2017). Paid leave may have these effects because it allows mothers to seek prompt care of their infants upon initial presentation of illness, thus preventing complications that may require a hospital readmission (Jou et al. 2017). If mothers are able to be home with their infants, they will have the opportunity to notice signs of illness as well as treat or seek prompt care.

## **2.5 Effects of Insurance on Health Outcomes**

There are few studies that have measured the relationship between health insurance and maternal and neonatal health outcomes, with even less evidence pertaining to the United States. However, in 2012, the United States Agency for International Development and partners convened a Maternal Health Evidence Summit (Comfort et al. 2013). Global experts on maternal health and health economics came together to review existing evidence on different financial mechanisms, including health insurance, on the use and provision of maternal health services and maternal and neonatal health outcomes (Comfort et al. 2013). The evidence reviewed came from low- and middle-income countries, which included Saharan African countries, Latin American countries, and Asian countries.

Among three studies that were examined that focused on insurance and maternal mortality, only one was found to be rigorously conducted (Comfort et al. 2013). That one study found no

effect on insurance and pregnancy-related deaths in China (Chen & Jin 2012). The evidence available that focused on neonatal outcomes was shown to be contradictory. For example, one study in Ghana found that National Health Insurance Scheme (NHIS) members are less likely to have birth complications (Mensah et al. 2010), whereas a study in Columbia found no difference in birth complications between insured women and uninsured women (Escobar et al. 2010). Furthermore, in regard to neonatal outcomes, particularly birthweight, insured women in Costa Rica had a lower probability of having a baby with low birthweight (Cercone et al. 2010). However, insured women in Colombia were more likely to have a baby with low birthweight (Escobar et al. 2010). Two studies identified a negative correlation between health insurance and neonatal deaths (Mensah et al. 2010; Barros et al. 2005). In Brazil, neonatal mortality and birthweight-specific neonatal mortality decreased over time as insurance coverage expanded. Another study conducted in China, which examined miscarriages and stillbirths, found that women who paid out of pocket were 4.54 times more likely to experience these adverse pregnancy outcomes compared to insured women (Bogg et al. 2002).

Some authors do not explain why they found contradictory findings, but most studies provided suggestive evidence that the relationship between health insurance and these health outcomes was mediated through the effect of insurance on access to care (Comfort et al. 2013). For example, the authors suggested that the absence of an effect on maternal mortality in China is linked to low reimbursement rates which would limit usage of health services. Furthermore, NHIS members in Ghana, who were less likely to have birth complications, were more likely to have antenatal care visits and more likely to have more intensive testing during those visits (Mensah et al. 2010). In contrast, the decrease in birthweight observed in Brazil, despite insurance coverage expanding, was attributed to greater use of medical technology, such as

ultrasounds, which may have resulted in inducing labor or performing C-sections earlier (Barros et al. 2005).

Perinatal outcomes can be influenced by a number of factors, such as maternal demographics, socioeconomic status, preexisting medical conditions, and type of care; however, evidence for disparities in health outcomes by type of care (i.e. public vs. private) is lacking (Jang et al. 2017). Moreover, current data regarding the influence of private health insurance on health outcomes is conflicting. One study conducted in New York City examined neonatal outcomes by insurance status in private and public hospitals (Lipkind et al. 2009). They found that neonatal outcomes were significantly better for privately insured women, however, outcomes were significantly better for women without private health insurance who birthed in a private hospital as well (Lipkind et al 2009). Another study conducted in the United States found that while private health insurance was protective against a pregnancy resulting in a NICU admission for some ethnic groups, it wasn't for all racial groups (Jongh et al. 2012). Particularly, having private insurance did not protect Black or Non-Hispanic mothers from higher NICU admissions rates than age-matched women with public insurance. This suggests that adverse pregnancy outcomes are mitigated differently across race/ethnicity, maternal age, and insurance status and these must all be considered when planning programs to improve health outcomes (Jongh et al. 2012).

Overall, the evidence regarding the relationship between health insurance and maternal and neonatal health outcomes is inconclusive, due to the limited amount of studies focusing on these outcomes and the conflicting evidence (Comfort et al. 2013). Due to the limited amount of research, particularly in the United States, conducting research focusing on the effects of health insurance are important to better understand the need for and effects of access.



## 2.6 Critical Gaps

While previous literature shows that the current U.S. policies of FMLA are inadequate to address the health needs of new mothers (Berger et al. 2005), existing literature does not clearly establish the link between the lack of strong maternal leave protections and the current health outcomes in the United States due to treating all U.S. policies and health outcomes as uniform. Further cross-national comparison of US maternal health outcomes to other nations is extremely limited due to limitation of data and the unique history of maternal healthcare and policies. According to Budig et al. (2012) a diversity of socio-political and historical settings, as well as cultural support, amplifies the relationships between parental leave and other aspects of society, such as maternal earnings and childcare policies. Due to political, social, and economic institutional differences, research does not show how transferable these outcomes will be in the United States. However, U.S. health policy is actually decentralized with several significant and growing variations from the federal policy of FMLA. Specifically, California in 2004 and New Jersey in 2009 have each instituted policy changes at the sub-national/state level that have the potential to radically alter the health outcomes of residents in these states.

In addition to the lack of research on paid leave policies within the United States, there is also inadequate research on the impact of medical insurance on maternal and child health outcomes. Examining the types of medical insurance is important to understand whether access to insurance is just as crucial as eligibility of a policy. This thesis utilizes a cross-state comparison to examine whether infant and maternal health outcomes vary between states with paid paternal/maternal leave (California and New Jersey) and states without such policies (all other states). Additionally, this thesis will examine whether infant and maternal health outcomes vary by type of medical insurance. In this way, this thesis addresses the limitations of previous

research by examining the variation within the U.S. case where outcomes may vary by geography due to state policies and by coverage of insurance.

### **3 RESEARCH DESIGN**

#### **3.1 Hypotheses**

The following hypotheses were formed from the literature. The hypotheses are analyzed using binary logistic regression.

H<sub>1</sub> – Women in California and New Jersey will report that their emotional and physical well-being did not interfere with their ability to care for their baby than women in non-paid maternity leave states.

H<sub>2</sub> – Women in California and New Jersey will meet a higher number of infant ‘well’ visits than women in non-paid maternity leave states.

H<sub>3</sub> – Women who receive private medical insurance from their employers will report that their emotional and physical well-being did not interfere with their ability to care for their baby than individuals who do not have private insurance.

H<sub>4</sub> – Women who receive private medical insurance from their employers will meet a higher number of infant ‘well’ visits than women who do not have private insurance.

#### **3.2 Data**

To assess the relationship between paid maternity leave, maternal health outcomes, and parental health involvement outcomes, I utilized the public data from the Listening to Mothers III. Listening to Mothers is a longitudinal study of a nationally representative sample of U.S. mothers. Listening to Mothers I was conducted in 2002, Listening to Mothers II was conducted in 2006, and Listening to Mothers III was conducted in 2013. The purpose of Listening to Mothers I, II, and III is to:

1) understand experiences and perspectives of childbearing women and use this knowledge to improve maternity care policy, practice, education, and research; 2) compare actual experiences of childbearing women, newborns, and families with mothers' values and preferences, as well as with evidence-based care, optimal outcomes, and protections granted by law; and 3) identify gaps to improve conditions during this crucial developmental period for about four million mothers and babies annually in the United States (Declercq et al. 2013).

For the purposes of this study, I utilized The Listening to Mothers III. Listening to Mothers III was the only longitudinal study conducted after California and New Jersey enacted their paid leave programs and thus provides a comparison between states that could not be achieved using dataset I or II. The Listening to Mothers III was commissioned by Childbirth Connection and administered by Harris Interactive. The survey was conducted in two waves. The first wave established initial respondents (N=2400), while the second wave followed-up with women on outcomes after birth. The research focus of this thesis is on the maternal and infant health outcomes after birth; therefore, Wave II was utilized (N=1072).

All survey participants were women ages 18-45, who had given birth to single babies in a U.S. hospital from July 1, 2011 through June 30, 2012 and could participate in English. On average, respondents were 14.3 months postpartum at the time of the follow-up survey. In order to develop a national profile of childbearing women, the data were adjusted with demographic and propensity score weightings using methodology developed and validated by Harris Interactive. Thus, the respondents are generally comparable to published national data for U.S. birthing mothers on critical factors such as age, race/ethnicity, parity, birth attendant, and mode of birth.

### ***3.2.1 Key concepts and measures***

In this section, I explain the formal concepts and how I will measure them using the Listening to Mothers III data.

### ***3.2.2 Dependent Variables***

**Maternal Health:** Maternal health outcomes were measured using a dichotomous variable. The original questions asked were “Thinking about the first two months after giving birth, how much did your physical health interfere with your ability to care for your baby?” and “Thinking about the first two months after giving birth, how much did your emotional well-being interfere with your ability to care for your baby?” Response categories consisted of (1) not at all, (2) some, (3) a fair amount, (4) quite a bit, and (5) a great deal. I combined the two scores and converted anyone who reported ‘not at all’ to both questions to a value of 0 and anyone who had a combined value of 2, was recoded to 1. Thus, 0 is an indicator of better maternal health outcomes and 1 is an indicator of poorer maternal health outcomes. By combining these two measures, I treated physical and mental health as equal components. The problem with using only one measure, or a “disorder-specific model,” is that people with different disorders are classified as “well” because they do not have one particular disorder that is singled out for investigation (Aneshensel 2005). For example, if I only examined physical health, a person that reported that their mental health interfered with their ability to care for their baby would be classified as “well” because the person did not report physical health issues. Previous studies have almost entirely focused on either maternal mental health or maternal physical health. For this study, this is my attempt to overcome existing limitations through a more holistic approach. Therefore, I examined mental and physical health holistically.<sup>1</sup>

<sup>1</sup> There was no difference in outcomes by treating physical and mental health as separate measures.

**Parental Health Involvement and Parental Health Response:** Infant health outcomes were measured by how many recommended well-child ('well') visits children participated in. I conceptualize this variable as a distinct measure of infant health; Parental Health Involvement. Parental Health Involvement uses 'well' visits as a distinct measure of involvement because they assess the time and capacity of parent(s) to engage in frequent, non-emergency, medical evaluations of the child to meet pediatric recommendations. In contrast, 'sick' visits, which I conceptualize as Parental Health Response, measures how sickly the child is and likely reflects immediate demands for health issues that are perceived to be significant. Thus, parents are likely to find the time and resources to address what are perceived to be immediate health crises for their child, a response, by engaging in sick visits, regardless of the impact to their work. Whereas, 'well' visits are a measure of compliance with medical recommendations for post birth care. Given that there is a recommended level of care, requires a distinct level of active parental involvement to achieve these goals.

Therefore, this research keeps these measures distinct to prevent conflation between the "sickness" of a child versus the capacity, energy, or availability of a parent to engage in regular check-ups. Although a parent may be forced to take time off work to deal with a specific illness of a child, a parent that does not have access to maternal leave should be much less likely to have the time, or take the time, to engage in the regularly recommended visits with their doctor. Thus, parental health involvement is a measure of compliance with medical recommendations for post birth care and directly connects to one of the central goals of paid leave programs, to improve long-term child health outcomes. Therefore, I use only 'well' visits to measure infant health because this addresses the ability of parents to engage in their child's long-term health and well-

being, whereas ‘sick’ visits are an alternative that measures the treatment of symptoms that already exist.

The original question asked, “Since birth, how many ‘well’ visits has your child had at a health care provider’s office or clinic, best as you can recall?” The original dataset converted “what was the date of your baby’s birth?” into months since baby’s date of birth. According to the American Academy of Pediatrics (AAP), the schedule of well-child visits from birth to 18 months should be as follows: the first week (3-5 days old), 1 month old, 2 months old, 4 months old, 6 months old, 9 months old, 12 months old, 15 months, and 18 months. None of the respondents who were interviewed were less than 4 months post-partum and no more than 18 months post-partum, thus I am starting at 4 and ending at 18. I recoded the months into ranges based on the number of recommended well child visits according to the AAP, starting at 4 visits (4-8=5) (9-11=6) (12-14=7) (15-17=8) (18=9). The variable “Parental Health Involvement” will be generated by the number of well visits reported by the parent, divided by the number of recommended well child visits for each case. A dummy variable was created whether requirements were met. Cases were coded as 1 if ‘well-visits’ were met or exceeded. If ‘well-visits’ were not met, they were coded as 0. Thus, less than 1 is an indicator of less parental health involvement and 1 or greater is an indicator of more parental health involvement, which should have an indication of long-term well-being of the child.

### ***3.2.3 Independent variables***

**State Policy:** In order to measure for paid maternity leave, I will be utilizing state policies. I hypothesize that states that have paid maternity leave, in this case, California and New Jersey, should generally have higher levels of maternal and infant health than states that do not have a paid maternity leave policy. The original question asked, “In what state do you currently

reside?” Responses consisted of all 50 states and the District of Columbia. There was a total of 255 California respondents and 54 New Jersey respondents. I created two new geography variables to control for state level policy differences. Any Leave Policy will be coded as a dichotomous nominal variable where 1 = California and New Jersey and 0 = all other states as the reference group. This variable was used to test hypotheses 1 and 2.

**Medical Care Provider.** People who are in the high-end workforce, who have access to private insurance, may not need state-wide paid maternity leave. However, people on the lower end, who are vulnerable in these situations, may gain the most by having a state-wide paid maternity leave policy. The original question asked, “What was the primary source of payment for all your maternity care services (provider and hospital bills, lab tests, etc.)? Was it...?” Response categories were: (1) Medicaid or CHIP, (2) Other government programs (such as Tricare, Federal Employees Health Benefits, VA), (3) Private insurance, and (4) Paid for it out of pocket. I created a series of dummy variables, one for each type.

### **3.2.4 Controls**

**Age.** Generally, there may be more problems with pregnancy and birth when the mother is older. Therefore, I controlled for age. Age responses were placed into categories: (3) 18-19, (4) 20-24, (5) 25-29, (6) 30-34, (7) 35-39, and (8) 40-44. I kept age in the original categories.

**Race:** The original question asks, “Do you consider yourself...? Please select all that apply.” Response categories were coded as (1) White, (2) Black/African American, (3) Hispanic/Latina, (4) American Indian, (5) all others. I created a series of dummy variables for White, Black, Hispanic, and Other.

**Socioeconomic Status (SES):** I created an SES variable scale from income and education. In regard to income, the original question asked, “Which of the following income

categories best describes your total 2011 household income before taxes?” Response categories ranged from (1) \$15,000 or less to (27) \$250,000 or more. In regard to education, the original question asked, “What is the highest level of education you have completed or the highest degree you have received?” Response categories ranged from (1) less than high school to (7) graduate school (e.g., M.S., M.D., Ph.D.). Because income runs on a scale from 1-27 and education runs on a scale from 1-7, I recoded education. For education, I multiplied categories by 4. By doing so, this made the two variables more equivalent. Income remained on a scale of 1-27, but education became a scale of 4-28. The reason I decided to expand education is because people with significantly more education would understand the risks and the needs of infant and maternal health, therefore they may be more likely to follow guidelines, even if they aren’t necessarily higher income people. This SES variable became a scale from 5-55 with lower scores indicating low SES and higher scores indicating higher SES.

#### **4 ANALYSIS**

All statistical procedures were analyzed using STATA version 16. Before conducting analyses, a filter was set to only include participants who responded to the following question: “Did the employer you worked for during your pregnancy have a paid maternity leave benefit?”, with answer choices being, “Yes, but I didn’t take any paid leave.”; “Yes, and I took paid leave.”; “No, my employer did not have such a policy.”; and “Not sure.” Only participants who answered Yes or No were included in the analyses. By doing so, 431 cases were dropped (N=641).

The analyses conducted during this thesis were divided into three categories: univariate, bivariate, and multivariate analysis. First, univariate analysis was conducted to examine the descriptive statistics of the population, which revealed the means, ranges, and standard



deviations of the key study variables. Next, bivariate analysis were conducted using Chi-square tests and Pearson's  $r$  correlations to check for any significant relations between maternal health and parental health involvement with state-policy, medical care provider, and race. Lastly, multivariate regressions were conducted using binary logistic regression.

Binary logistic regression was used to predict maternal health outcomes by state-policy and medical care provider, with race, age, and SES as control variables. Binary logistic regression was also used to predict parental health involvement by the same variables. Binary logit models the relationship between a set of predictors and a binary response variable. A binary response has only two possible values. The dependent variable, maternal health, has a binary response with participants either reporting that their physical and/or emotional wellbeing interfered with their ability to care for their baby in the first two months after giving birth, or not. The dependent variable, parental health involvement, has a binary response with participants either meeting the recommended amount of well-child visits or not. Using a binary regression model allows us to understand how changes in the predictor values are associated with changes in the probability of an event occurring.

$$\log (p/(1-p)) = \beta_0 + \beta_1(\text{State Policy}) + \beta_2(\text{Medicaid or CHIP}) + \beta_3(\text{Other govt}) + \beta_4(\text{Out of pocket}) + \beta_5(\text{Age}) + \beta_6(\text{Black}) + \beta_7(\text{Hispanic}) + \beta_8(\text{Other})$$

#### **4.1 Descriptive table**

The final sample included 641 participants. Table 1 presents the descriptive statistics of women, within Listening to Mothers III, for all study variables including means, ranges, and standard deviations. Maternal health was measured using a dichotomous variable to assess mothers' self-reported mental and physical wellbeing after giving birth. Within the final sample, 45.9% of mothers reported that their physical and/or emotional wellbeing interfered with their

ability to care for their infant within the first two months postpartum, whereas 54.1% of mothers reported that their health did not interfere with their ability to care for their infant. To assess infant health, parental health involvement (PHI) was measured using the American Academy of Pediatrics recommended amount of well-child visits by age. Within the final sample, 65.5% of respondents did not meet the recommended number of well-child visits, while 34.5% of respondents did.

Within the final sample, 12.2% of women resided in California and New Jersey. The breakdown of types of medical care provider coverage are: 18.3% of women were covered by Medicaid or by the Children's Health Insurance Program (CHIP), 6.4% of women were covered by another government program, such as Tricare, Federal Employees Health Benefits, and the Veterans Affairs (VA), 71.1% of women were covered by private insurance, and 4.2% of women paid out of pocket for medical expenses. The average age of respondents was 30-34 years old. Of the sample, 67.1% of women reported they were White, 10.6% reported they were Black, 16.1% reported they were Hispanic, and 5.9% reported other, which included American Indian. Socioeconomic status (SES) was measured using a scale from income and education. With a range of 5 to 55, the average SES of respondents was 30.69 ( $\pm 9.48$ ).

Table 1. Descriptive Statistics

	% (N)	M (SD)
<b>Dependent Variables</b>		
<i>Maternal Health</i>		
Health didn't interfere	54.1% (347)	
Health interfered	45.9% (294)	
<i>Parental Health Involvement</i>		
'Well-child' visit recommendation not met	65.5% (420)	
'Well-child' visit recommendation met	34.5% (221)	
<b>Independent Variables</b>		
<i>State-Policy</i>		
California & New Jersey	12.2% (78)	
All other states	87.8% (563)	
<i>Medical Care Provider</i>		
Medicaid or CHIP	18.3% (117)	
Other government programs	6.4% (41)	
Private insurance	71.1% (456)	
Paid for it out of pocket	4.2% (27)	
<b>Controls</b>		
<i>Age</i>		
Category 3 (18-19)	2.5% (16)	
Category 4 (20-24)	14.5% (93)	
Category 5 (25-29)	25.6% (164)	
Category 6 (30-34)	34.0% (218)	
Category 7 (35-39)	17.3% (111)	
Category 8 (40-44)	6.1% (39)	
<i>Race</i>		
White	67.1% (430)	
Black	10.6% (68)	
Hispanic	16.1% (103)	
Other	5.9% (38)	
<i>SES<sub>i</sub></i>		30.69 (9.48)

Note. N =641. *i*Range: 5 to 55.

## 4.2 Chi square tables

Tables 2 and 3 show the results of the chi square tests. I examined whether maternal health, state-policy, type of medical care provider, and race were independent of each other. In Table 2, a significant interaction was found between medical care provider and maternal health. The strength and direction of these relationships were tested below in Table 4.

Additionally, I examined whether parental health involvement, state-policy, type of medical care provider, and race were independent of each other. Out of the tests, a significant interaction was found between state-policy and parental health involvement. As hypothesized, there are significant differences in participants who resided in California and New Jersey, and those who do not, with 46.1% of California and New Jersey residents meeting their recommended well-child visits, whereas only 32.9% of residents residing in other states met the AAP recommendations. Furthermore, a significant interaction was found between parental health involvement and medical care providers. However, these findings were not hypothesized. Enrollees of private insurance were less likely to meet their recommended well-child visits, while participants who paid out of pocket were more likely to meet their recommended well-child visits. Specifically, 68.9% of private insurance enrollees did not meet the recommended amount of well-child visits, whereas 59.3% of participants who paid out of pocket did. A significant interaction was also found between race and parental health involvement. The strength and direction of these relationships were tested below in Table 5.

*Table 2. Results of Chi-Square Test and Descriptive Statistics for Maternal Health by State-Policy, Medical Care Provider, and Race*

	Health Did Not Interfere	Health Interfered
<b>Independent Variables</b>		
<i>State-Policy</i>		
California & New Jersey	39 (50.0%)	39 (50.0%)
All other states	308 (51.7%)	255 (45.3%)
<i>Medical Care Provider*</i>		
Medicaid or CHIP	56 (47.9%)	61 (52.1%)
Other government programs	23 (56.1%)	18 (43.9%)
Private insurance	259 (56.8%)	197 (43.2%)
Paid for it out of pocket	9 (33.3%)	18 (66.7%)
<i>Race</i>		
White	239 (55.6%)	294 (44.4%)
Black	35 (51.5%)	33 (48.5%)
Hispanic	49 (47.6%)	54 (52.4%)
Other	23 (60.5%)	15 (39.5%)

Note. Numbers in parentheses indicate column percentages. \*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$

*Table 3. Results of Chi-Square Test and Descriptive Statistics for Parental Health Involvement by State-Policy, Medical Care Provider, and Race*

	PHI – Visits Not Met	PHI – Visits Met
<b>Independent Variables</b>		
<i>State-Policy*</i>		
California & New Jersey	42 (53.9%)	36 (46.1%)
All other states	378 (67.1%)	185 (32.9%)
<i>Medical Care Provider**</i>		
Medicaid or CHIP	68 (58.1%)	49 (41.9%)
Other government programs	27 (65.8%)	14 (34.2%)
Private insurance	314 (68.9%)	142 (31.1%)
Paid for it out of pocket	11 (40.7%)	16 (59.3%)
<i>Race</i>		
White**	299 (69.5%)	131 (30.5%)
Black**	35 (51.5%)	32 (48.5%)
Hispanic**	54 (52.4%)	49 (47.6%)
Other	30 (78.9%)	8 (21.1%)

Note. Numbers in parentheses indicate column percentages. \*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$

### 4.3 Multivariate Regressions

Table 4 and 5 show the results of the binary logistic regressions used to analyze the effect of maternal health or parental health involvement, with state-policy, medical care providers, age, race, and SES being used as predictors. In Table 4, odds ratios predict if physical and emotional wellbeing interfered with mothers' ability to care for their infant in the first two months postpartum. In Table 5, odds ratios predict the likelihood of meeting the AAP recommendation of well-child visits. If the odds are greater than or equal to 1, then the outcome is more likely to occur. If the odds are less than 1, then the odds are less likely to occur.

#### 4.3.1 *Maternal Health*

Table 4 presents the findings from the binary logistic regression predicting maternal health outcomes, based on self-reported maternal physical and emotional wellbeing after birth. Model 1 shows the results of regressing state-policy and SES on maternal health. These variables were found to be non-significant. Model 2 address the second main independent variable, the effect of types of medical care providers. The odds of respondents reporting that their physical and emotional wellbeing interfered with their ability to care for their baby were higher for those who paid out of pocket. Specifically, out of pocket respondents were 1.05 times or 5% more likely to report physical and emotional wellbeing interfering with their ability to care for their infant (OR=1.05,  $p<.05$ ) compared to respondents who had insurance (Medicaid or CHIP, other government insurance programs, and private insurance). Model 3 controls for all demographic variables, which includes state-policy, medical care provider, SES, race and age. In this model, all variables were found to be non-significant.

The final model controls for all variables, except for age. In Model 4, controlling for state-policy, SES, medical care provider, and race, out of pocket was found to be significant. Out of pocket respondents were 2.46 times or 146% more likely to report that physical and emotional wellbeing interfered with their ability to care for their infant during the first two months postpartum (OR=2.46;  $p<.05$ ) than those with insurance. All other variables were found to be non-significant. Although out of pocket was found to be the only significant variable, this shows that women who have to pay out of pocket for their health care are more likely to report poorer health outcomes than those with insurance, thus having insurance could improve mothers' physical and emotional wellbeing.



*Table 4: Binary Logistic Regression for Maternal Health*

	Model 1		Model 2		Model 3		Model 4	
	B (SE)	OR	B (SE)	OR	B (SE)	OR	B (SE)	OR
State-Policy								
California & New Jersey	.197 (.242)	1.22	.181 (.245)	1.20	.187 (.256)	1.21	.179 (.255)	1.19
SES	-.014 (.008)	0.99	-.011 (.009)	0.99	-.007 (.009)	0.99	-.009 (.009)	.990
Medical Care Provider								
Medicaid or CHIP			.283 (.219)	1.33	.196 (.231)	1.22	.274 (.226)	1.32
Other government programs			-.034 (.332)	0.97	-.121 (.337)	0.88	-.055 (.333)	0.95
Out of pocket			.909 (.421) *	1.05	.799 (.432)	2.22	.902 (.426) *	2.46
Age					-.130 (.074)	0.88		
Race								
Black					-.016 (.272)	0.98	.016 (.271)	1.02
Hispanic					.098 (.237)	1.10	.141 (.235)	1.15
Other					-.393 (.358)	0.68	-.339 (.357)	0.71
Constant	.262 (.271)	1.30	.050 (.307)	1.05	.720 (.507)	2.06	.026 (.315)	1.03

Note. N=641. Unstandardized regression coefficients shown (Std Error) and Odds Ratio (OR).

<sup>1</sup>Reference category is All Other States. <sup>2</sup>Reference category is Private Insurance. <sup>3</sup>Reference category is White. \*  $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$

### ***4.3.2 Parental Health Involvement***

Model 1 shows the results of regressing state-policy and SES on parental health involvement. As hypothesized, the odds of those who resided in California or New Jersey was 1.78 times or 78% more likely to meet the AAP guidelines (OR=1.78,  $p<.01$ ) than those who resided in other states. SES was also found to be significant, however, Model 1 shows that as SES increases, the odds of meeting AAP guidelines is less likely to occur (OR=0.98,  $p<.05$ ). Model 2 address the second main independent variable, insurance. The odds of respondents meeting AAP guidelines who paid out of pocket were 2.92 times more likely to occur (OR=2.92,  $p<.01$ ) compared to respondents who were enrollees of insurance (Medicaid or CHIP, other government insurance programs, and private insurance).

Model 3 controls for all demographic variables (state-policy, medical care provider, SES, race, and age). While state-policy remains significant, SES, medical care provider, and age are found to be non-significant. Model 3 shows Black and Hispanic as significant, indicating that when all variables are controlled for, Blacks and Hispanics are most likely to comply and meet the recommended amount of well-child visits. Specifically, when all variables are controlled, Blacks were 1.91 times or 91% more likely to meet AAP guidelines (OR=1.91,  $p<.05$ ), and Hispanics were 1.66 times or 66% more like to meet AAP guidelines (OR=1.66,  $p<.05$ ) compared to Whites.

The final model, Model 4, controls for all variables except for age. Age was not found to be significant in any models, so I decided to drop this variable in Model 4. Within Model 4, state-policy and race remained significant. The odds of respondents who resided in California or New Jersey was 1.71 times or 71% more likely to meet the recommended amount of well-child visits (OR=1.71,  $p<.05$ ) than those who resided in other states within the United States. With

SES and medical care provider controlled for, the odds of Blacks to meet AAP guidelines was 1.87 times or 87% more likely compared to Whites. Similarly, the odds of Hispanics to meet AAP guidelines was 1.62 times or 62% more likely compared to Whites.

Across all models, state-policy remained significant. As hypothesized, respondents who lived in states that offered paid maternity leave, in this case, California and New Jersey, were more likely to meet pediatric guidelines (AAP's schedule of well-child visits). <sup>2</sup>

<sup>2</sup> There was no association between sick-visits and all study variables. Sick visits proved to be non-significant in all measures, demonstrating that the issue of paid leave is about giving parents time to address the long-term well-being of their children.

*Table 5: Binary Logistic Regression for Parental Health Involvement*

	Model 1		Model 2		Model 3		Model 4	
	B (SE)	OR	B (SE)	OR	B (SE)	OR	B (SE)	OR
State-Policy								
California & New Jersey	.575 (.245) **	.78	.561 (.248) *	1.75	.533 (.263) *	1.70	.536 (.263) *	1.71
SES	-.019 (.009) *	0.98	-.014 (.010)	0.99	-.012 (.010)	0.99	-.011 (.010)	.989
Medical Care Provider								
Medicaid or CHIP			.385 (.226)	1.47	-.306 (.390)	0.74	-.297 (.391)	0.74
Other government programs			.040 (.350)	1.04	-.316 (.241)	0.73	-.265 (.236)	0.77
Out of pocket			1.072 (.409) **	2.92	.734 (.448)	2.08	.718 (.448)	2.05
Age					.081 (.078)	1.08		
Race								
Black					.646 (.275) *	1.91	.626 (.274) *	1.87
Hispanic					.507 (.242) *	1.66	.480 (.240) *	1.62
Other					-.705 (.429)	0.49	-.734 (.428)	0.48
Constant	-.123 (.285)	0.88	-.426 (.326)	0.65	-.705 (.497)	0.49	-.323 (.331)	0.72

Note. N=641. Unstandardized regression coefficients shown (Std Error) and Odds Ratio (OR).

1Reference category is All Other States. 2Reference category is Private Insurance. 3Reference category is White. \*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$

## 5 DISCUSSION

This study examined the association between paid maternity leave and maternal and infant health outcomes. Previous research that utilized a cross-national comparison of US maternal health outcomes to other nations is extremely limited both due to limitation of data and the unique history of maternal healthcare and policies. Therefore, research does not show how transferable these outcomes will be in the United States. Using the growing variations from the U.S. federal policy of FMLA, due to decentralized health policy at the state level, this research examined variations with U.S. policy to generate a quantitative comparative study of between state variation to examine the causal mechanisms between health policy and health outcomes.

Overall, this study did not find support that a paid maternity leave policy improves maternal health, but it did find support of parental health involvement, which is considered a proxy for infant health. When examining maternal health outcomes, all variables were found to be non-significant, except for one – out of pocket. Therefore, the first hypothesis regarding state-policy was not supported, but the third hypothesis regarding medical care was. Even though state-policy was found to be non-significant, I believe the two questions used to create a dichotomous maternal health variable were insufficient at addressing maternal health holistically. Therefore, this does not prove that paid leave has a negative effect on maternal health, but that further research needs to be conducted using a stronger holistic measure for maternal health. Furthermore, although out of pocket was found to be the only significant variable in Table 4, this shows that medical insurance is important when examining maternal health. Out of pocket respondents were 2.46 times or 146% more likely to report that their physical and/or emotional wellbeing interfered with their ability to care for their baby during the first two months

postpartum (OR=2.46,  $p<.05$ ). This shows that having medical insurance can improve mothers' health.

The second hypothesis was supported. Throughout all models of Table 5, state-policy was found to be significant. It was hypothesized that women in California and New Jersey would meet a higher number of infant 'well' visits than women in non-paid maternity leave states, due to having the time, energy, and capacity to do so. After controlling for demographic variables, the odds of parental health involvement for those who live in California or New Jersey was 1.71 times or 71% more likely to occur (OR=1.71,  $p<.05$ ). Black and Hispanic was also found to be significant. This shows that once all variables are controlled for, such as type of insurance and SES, Blacks and Hispanics are more likely to comply with the AAP's schedule of well-child visits. This supports previous research that found the implementation of paid family leave in California increased better outcomes for more vulnerable groups, which included Blacks and Hispanics (Rossin-Slater et al. 2012). Wolf et al. (2020) found that African American children miss a greater proportion of well-child visits compared to whites, however, this was due to financial stress, taking time off work, and difficulty with childcare. Providing paid leave to mothers reduces these barriers, making it possible to attend more of these visits.

The last hypothesis was also not supported. I hypothesized that women who were enrollees of private medical insurance from their employers would meet a higher number of infant well-child visits than women who do not have private insurance. Although medical care providers were found to be non-significant, these findings indicate that having a state-wide policy is beneficial to everyone and leaving the issue of paid leave to the private sector is not enough. Creating a state-wide policy can create a culture of acceptance for taking maternity leave, which can create the same universal opportunity for all. If it is the employer's decision to

offer paid leave some women may feel pressure not to utilize it, due to the fear of how they may be perceived. Overall, this study found that medical insurance is beneficial when addressing maternal health, but a paid maternity leave policy is beneficial when addressing infant health. Therefore, medical insurance and a paid leave policy are equally important to improve maternal and infant health as a whole.

### **5.1 Implications, Limitations, and Future Research**

There are a couple limitations to this study. While Listening to Mothers III is a nationally representative sample of mothers in the United States that provides unique data on women's health and employment around the time of childbirth, it lacks important information. For example, Listening to Mothers III does not provide detailed information about respondents' prenatal health conditions. If respondents had preexisting health conditions before giving birth, that may have impacted their physical and mental health postpartum. That could have affected outcomes of this study due to the inability to control for these variables.

Another limitation of this study is the maternal health variable. I believe the two questions used to create a dichotomous variable were insufficient at addressing maternal health holistically. It is important to examine both maternal physical health and maternal mental health, however, I believe the variable used does not have high validity. Further research should look at additional variables (hospitalization rates, depressive symptoms, etc.) to create a holistic measure of maternal health in order to produce higher validity.

Additionally, available and current data regarding these issues in the United States is lacking. Since Listening to Mothers III was collected, more states have implemented state-wide maternity leave policies. However, due to the timing of data collection, I was unable to examine these additional states. Examining more states health outcomes could produce research with

higher validity. Furthermore, due to the small percentage of respondents residing in California and New Jersey, I was unable to test the variance between these two states. Further research should examine the variances between policies. The United States is unique because individual states have the ability to implement similar, but different policies. These variations could impact health outcomes differently. For example, a state that only allows 50% of pay versus 90% of pay may produce different outcomes. The length of policies is also important to examine. For example, examining health outcomes in California, which enacted a paid leave policy in 2004, versus health outcomes in Rhode Island, which enacted a paid leave policy ten years later in 2014, could give us a better understanding of how long a policy needs to be enacted to produce the best outcomes.

Regardless of these limitations, this research contributes to a better understanding of the implications of a paid maternity leave policy within the U.S. and fills the gap in two ways: First by highlighting the effects of paid leave by state-policy. The United States has distinct political, social, and economic institutional differences compared to the rest of the world. Therefore, research needs to be conducted within the U.S. to understand how transferable those outcomes will be. By statistically looking at differences by state-policy it becomes easier to identify how these outcomes will make a difference in the United States, for example, how it impacts vulnerable groups, such as low-income minorities. Secondly, my research emphasizes the importance of medical insurance. While there is a lack of research on paid leave in the United States, there is also a lack of research on the effects of medical insurance on maternal and infant health outcomes. Medical insurance is not universal within the United States. Thus, being able to point out how types of medical insurance, or no medical insurance, impacts maternal and infant health is crucial. My research could aid in furthering of policy and funding which would



positively impact families across the country. This would ultimately close the gap between vulnerable populations and privileged populations and enhance everyone's quality of life.

## **5.2 Conclusion**

Due to the United States being the only industrialized country without a national maternity leave policy, it is important to understand how this policy change impacts mothers, infants, and families within the United States. In addition, it is important to understand how a lack of this policy may help individuals who are otherwise placed at a disadvantage, such as women of color and women of lower socioeconomic status. Hopefully my research will shed light on why the most basic and ubiquitous form of parental leave is a necessity to improve physical and emotional health outcomes.

## REFERENCES

- Aarhun, Antje, Knut A Øymar, and Kristin Akerjordet. 2018. "How health professionals facilitate parents' involvement in decision-making at the hospital: A parental perspective." *Journal of Child Health Care* 22(1): 108-121.
- Aitken, Zoe, Cameryn C. Garrett, Belinda Hewitt, Louise Keogh, Jane S. Hocking, and Anne M. Kavanagh. 2015. "The maternal health outcomes of paid maternity leave: A systematic review." *Social Science and Medicine* 130: 32-41.
- American Academy of Pediatrics. "Breastfeeding Benefits Your Baby's Immune System." *HealthyChildren.Org*. Retrieved May 1, 2019 (<http://www.healthychildren.org/English/ages-stages/baby/breastfeeding/Pages/Breastfeeding-Benefits-Your-Babys-Immune-System.aspx>).
- American Academy of Pediatrics. "2015 Recommendations for Preventive Pediatric Health Care." Retrieved March 31, 2020 (<https://pediatrics.aappublications.org/content/136/3/e727>).
- Andres, E., Baird, S., Bingenheimer, J. B., and Markus, A.R. 2016. "Maternity Leave Access and Health: A Systematic Narrative Review and Conceptual Framework Development." *Maternal Child Health Journal*, 20, 1178-1192.
- Aneshensel, Carol S. 2005. "Research in Mental health: Social Etiology versus Social Consequences." *Journal of Health and Social Behavior* 46:221-228.
- Anon. n.d. "FMLA (Family & Medical Leave) | U.S. Department of Labor." Retrieved September 4, 2018 (<https://www.dol.gov/general/topic/benefits-leave/fmla>).

- Barros, Fernando C., Cesar G. Victoria, Alusio JD Barros, Ina S. Santos, Elaine Albernaz, Alicia Matijasevich, Marlos R. Domingues, Iândora KT Sclowitz, Pedro C. Hallal, Mariângelo F. Silveira, and J. Patrick Vaughan. 2005. "The challenge of reducing neonatal mortality in middle-income countries: findings from three Brazilian birth cohorts in 1982, 1993, and 2004." *Lancet* 365(9462): 847-854.
- Bartel, A. P., Soohyum Kim, Jaehyum Nam, Maya Rossin-Slater, Christopher Ruhm and Jane Waldfogel. 2019. "Racial and ethnic disparities in access to and use of paid family and medical leave: evidence from four nationally representative datasets." *Monthly Labor Review*, 1-29.
- Berger, Lawrence M, Jennifer Hill and Jane Waldfogel. 2005. "Maternity Leave, Early Maternal Employment and Child Health and Development in the U.S.." *The Economic Journal* 115(501):F29-F47.
- Bogg, Lennart, Keli Wang, and Vinod Diwan. 2002. "Chinese maternal health in adjustment: claim for life." *Reproductive Health Matters* 10(20): 95-107.
- Brockington, I., 2004. Postpartum Psychiatric Disorders. *Lancet* 236, 303-310.
- Budig, Michelle J., Joya Misra, and Irene Boeckmann. 2012. "The Motherhood Penalty in Cross National Perspective: The Importance of Work-Family Policies and Cultural Attitudes." *Social Politics: International Studies in Gender, State and Society* 19(2): 163-193.
- Cercone, James, Etoile Pinder, JP Jimenez, and Rodrigo Briceno. "Impact of health insurance on access, use, and health status in Costa Rica." *Washington, DC: Brooking Institution Press*: 89-105.
- Chatterji, Pinka and Sara Markowitz. 2005. "Does the Length of Maternity Leave Affect Maternal Health?" *Southern Economic Journal* 72(1):16-41.

- Chen, Yuyu and Ginger Zhe Jin. 2012. “Does health insurance coverage lead to better health and educational outcomes? Evidence from rural China.” *Journal of Health Economics* 31(1): 1-14.
- Comfort, Alison B., Lauren A. Peterson, and Laurel E. Hatt. 2013. “Effect of Health Insurance on the Use and Provision of Maternal Health Services and Maternal and Neonatal Health Outcomes: A Systematic Review.” *Journal of Health, Population, and Nutrition* 31: 81-105.
- Dagher, Rada K., Patricia M. McGovern, and Bryan E. Dowd. 2014. “Maternity Leave Duration and Postpartum Mental and Physical Health: Implications for Leave Policies.” *Journal of Health Politics, Policy & Law* 39(2):369–416.
- Dahl, Gordon B., Katrine V. Løken, Magne Mogstad, and Kari Veia Salvanes. 2016. “What Is the Case for Paid Maternity Leave?” *Review of Economics & Statistics* 98(4):655–70.
- Declercq, Eugene R., Carol Sakala, Maureen P. Corry, Sandra Applebaum and Ariel Herrlich. 2013. “Listening to Mothers III: Pregnancy and Birth.” *New York: Childbirth Connection*.
- Escobar, Maria-Luisa, Charles C. Griffin, R. Paul Shaw, Brookings Institution. 2010. “The impact of health insurance in low- and middle-income countries.” *Washington, DC: Brookings Institution Press*.
- Gault, Barbara, Heidi Hartmann, Ariane Hegewisch, Jessica Milli, Lindsey Reichlin Cruse. 2014. “Paid Parental Leave in the United States: What the Data Tell Us about Access, Usage, and Economic and Health Benefits. *Institute for Women’s Policy Research*. Retrieved August 14, 2019 (<https://iwpr.org/publications/paid-parental-leave-in-the-united-states-what-the-data-tell-us-about-access-usage-and-economic-and-health-benefits/>).

- Hakim, Rosemarie B., and Barry V. Bye. 2001. "Effectiveness of Compliance with Pediatric Preventive Care Guidelines Among Medicaid Beneficiaries." *Official Journal of the American Academy of Pediatrics* 108(1): 90-97.
- Hewitt, Belinda, Lyndall Strazdins, and Bill Martin. 2017. "The benefits of paid maternity leave for mothers' post-partum health and wellbeing: Evidence from an Australian evaluation." *Social Science & Medicine* 182: 97-105.
- Heymann, Jody, Amy Raub, and Alison Earle. 2011. "Creating and Using New Data Sources to Analyze the Relationship between Social Policy and Global Health: The Case of Maternal Leave." *Public Health Reports* 126(3):127-34.
- Huang, Rui and Muzhe Yang. 2014. "Paid maternity leave and breastfeeding practice before and after California's implementation of the nation's first paid family leave program." *Economics and Human Biology* 16(2015): 45-59.
- Jang, Woonji, Christopher Flatley, Ristan M. Greer, and Sailesh Kumar. 2017. "Comparison between public and private sectors of care and disparities in adverse neonatal outcomes following emergency intrapartum cesarean at term – A retrospective cohort study." *Public Library of Science* 12(11): 1-12.
- Jongh, Beatriz E., Robert Locke, David A. Paul, and Matthew Hoffman. 2012. "The differential effects of maternal age, race/ethnicity and insurance on neonatal intensive care unit admission rates." *BMC Pregnancy and Childbirth* 12(97): 1-6.
- Jou, Judy, Katy B. Kozhimannil, Jean M. Abraham, Lynn A. Blewett, and Patricia M. McGovern. 2018. "Paid Maternity Leave in the United States: Associations with Maternal and Infant Health." *Maternal and Child Health Journal* 22(2):216-25.

- Lipkind, Heather S., Christina Duzyj, Terry J Rosenberg, Edmund F Funai, Wendy Chavkin, and Mary Ann Chiasson. 2009. "Disparities in Cesarean Delivery Rates and Associated Adverse Neonatal Outcomes in New York City Hospitals." *Obstetrics & Gynecology Journal* 113(6): 1239-1247.
- McCloskey, Abby M. 2016. "A Plan for Parental Leave." *National Review* 68(9):18–21.
- Mensah, Joseph, Joseph R. Oppong, and Christopher M. Schmidt. 2010. "Ghana's national health insurance scheme in the context of the health MDGs: an empirical evaluation using propensity score matching." *Health Economics* 19(Suppl1): 95-106.
- Paid Maternity Leave. (2018). In: *Cambridge Dictionary*. [Online] Available at: <https://dictionary.cambridge.org/us/dictionary/english/paid-maternity-leave> [Accessed 19 Oct. 2018].
- Pearlstein, T., Howard, M., Salisbury, A., Zlotnik, C., 2009. "Postpartum Depression." *American Journal of Obstetrics and Gynecology*, 200(4): 357-364.
- Perez, T. E., and Groshen, E. L. 2015. "National Compensation Survey: Employee Benefits in the United States." *U.S. Department of Labor*.
- Rossin-Slater, Christopher J. Ruhm, and Jame Waldfogel. 2012. "The Effects of California's Paid Family Leave Program on Mothers' Leave-Taking and Subsequent Labor Market Outcomes." *Journal of Policy Analysis and Management* 32(2): 224-245.
- Ruhm, Christopher J. 2000. "Parental Leave and Child Health." *Journal of Health Economics* 19:931-960.
- Shepherd-Banigan, Megan and Janice Bell. 2014. "Paid Leave Benefits among a National Sample of Working Mothers with Infants in the United States." *Maternal & Child Health Journal* 18(1):286–95.

- Singh, G. K., and Kogan, M.D. 2007. "Persistent socioeconomic disparities in infant, neonatal, and postneonatal mortality rates in the United States." *Pediatrics* 119(4): e928-e939.
- Turner, Katherine. 2018. "Well-Child Visits for Infants and Young Children." *American Family Physician* 98(6): 347-353.
- Wang, Wendy, Kim Parker, and Paul Taylor. 2013. "Breadwinner Moms." *Pew Research Centers Social & Demographic Trends Project*. Retrieved August 14, 2019 (<https://www.pewsocialtrends.org/2013/05/29/breadwinner-moms/>).
- Wolf, Elizabeth R., Jennifer O'Neil, James Pecsok, Rebecca S. Etz., Douglas J. Opel, Richard Wasserman, and Alex H. Krist. 2020. "Caregiver and Clinician Perspectives on Missed Well-Child Visits." *Annals of Family Medicine* 18(1): 30-34.
- World Health Organization. 2020. "Maternal Health." Retrieved March 1, 2020 (<http://www9.who.int/maternal-health/en/>).